

Looking back ...

Max Zorn: World Renowned Mathematician and Member of the Indiana MAA Section

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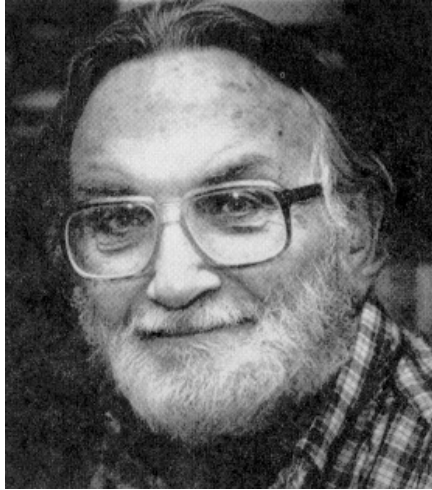
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Essentially all mathematics graduate students, as well as many undergraduate math majors, at some point in their studies learn the importance of the axiom of choice and some of its equivalent versions. The author of this note was a graduate student studying topology in the 1970's, when the current "mathematical humor" in my group involved riddles like the following:

Q: "What's sour and yellow and equivalent to the axiom of choice?"

A: "Zorn's lemon!"

While I knew that "Zorn" was the name of a mathematician who proved an equivalent version of the Axiom of Choice, I didn't know much about



the man Max Zorn until the late 1980s when a research colleague told me that Max was a professor at Indiana University, not far from Rose-Hulman, the school I happened to be joining as a faculty member. I never had a chance to meet Max, but during my first few years in Indiana it was a pleasure to learn more about this man, his interesting personality, and his mathematics.

Max August Zorn was born in Germany on June 6, 1906. He attended Hamburg University, from which he received his Ph.D. in 1930; his thesis advisor was Emil Artin. After a few years at the University of Halle, Max and his family left Germany, and they moved to the United States in 1933. [1]

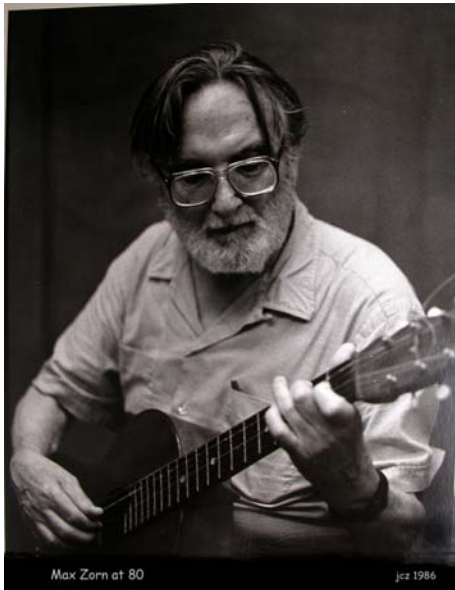
It was as a Fellow at Yale University (1934 – 1936) that Max published “A Remark on Method in Transfinite Algebra” [2], the article in which he presented the result that would become known as “Zorn’s Lemma.” From 1936 through 1946 he served as an Associate Professor at UCLA, and in 1946 he moved to Bloomington, where he had accepted a position as Professor of Mathematics at Indiana University. [1]

Max was a member of both the AMS and the MAA. Shortly after arriving at Indiana, he published his first *Monthly* article in the March 1947 issue; it was entitled “Approximating Sums” [3]. He attended his first Indiana MAA Section meeting on May 8, 1948 [4], and a few years later he was elected Chair of the Indiana Section for the year 1952-1953 [5].

Max held his full professor position until his retirement in 1971, and he remained active in the IU math department after retirement,

having a daily presence on the Bloomington campus for the rest of his life. He died on March 9, 1993, in Bloomington. At the time of his death he was survived by his wife, Alice Schlottau Zorn; one son, Jens Zorn; one daughter, Liz Zorn; two grandchildren and one great-grandchild [1]. His grandson, Eric Zorn, who is a columnist for the Chicago Tribune, wrote a particularly poignant personal essay about Max and his last days entitled *A Math Wizard, Hero to his Family* [6].

As those who knew Max well professionally shared their reminiscences after his death, mention of his mathematical accomplishments was somewhat overshadowed by reflection on the



personality and character of a very special man and colleague. John Ewing, who was then chair of the IU Mathematics Department, wrote about Max, “From time to time, he published a slim newsletter, the *Picayune Sentinel*, devoted to cryptic remarks about mathematics and mathematicians. He was a gentle man with a sharp wit, who during nearly a half-century inspired and charmed his colleagues at Indiana University.” [1]

In December 1993 Paul Halmos, who off and on was a colleague of Max at IU, also fondly recalled the *Picayune Sentinel* (and noted the use of double c’s, which he claims was Max’s usage) and wrote, “Max was a friend of mine, a good friend. ... I miss Max.” [7]

Of course, the mathematical work of Max Zorn was also highlighted in 1993. In two addresses [8] presented at the Memorial Symposium at Indiana University that year, IU professors Ewing and Darrell Haile, respectively, reviewed Max’s achievements related to

Zorn's Lemma and in a more general mathematical context. Most touching, in particular, are Haile's concluding remarks:

“These things having been said, for most of us in this room Max's published work, as significant and substantial as it is, is not what we will remember him by. It is rather Max's life-long dedication to mathematics and his apparently endless curiosity about mathematical ideas that we remember and from which we draw inspiration. For me personally this dedication is symbolized by the image of Max with his cane walking purposefully along Third Street to his office, day after day. It is Max's spirit and very presence that we will all miss.”

References

- [1] J. Ewing, *In Memoriam: Max Zorn*, Newsletter of the Indiana Section of the MAA, Spring 1993, pp. 2-3.
- [2] M. A. Zorn, *A remark on method in transfinite algebra*, Bull. Amer. Math. Soc., **41**(10), 1935, pp. 667-670.
- [3] M. A. Zorn, *Approximating sums*, The American Mathematical Monthly, **54**(3), 1947, pp. 148-151.
- [4] P. M. Pepper, *The May Meeting of the Indiana Section*, The American Mathematical Monthly, **56**(3), 1949, pp. 217-220.
- [5] J. C. Polley, *The May Meeting of the Indiana Section*, The American Mathematical Monthly, **59**(8), 1952, pp. 576-578.

[6] E. Zorn, *Year three begins with a change of title / A math wizard, hero to his family* (March 1993), http://blogs.chicagotribune.com/news_columnists_ezorn/2005/08/year_three_begi.html

[7] P. Halmos, *Postcards from Max*, *The American Mathematical Monthly*, **100**(10), 1993, pp. 942-944.

[8] *Two Addresses from the Memorial Symposium held at Indiana University, June 1993*, <http://www-personal.umich.edu/~jenszorn/01JCZHomepageAssets/MaxZornAsMathematician1.pdf>